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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): YOR920000648US1

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Application Number	Filed
09/732,122	12/7/00

First Named Inventor: Eide et al.

Art Unit	Examiner
2626	Abul K. Azad

Applicant requests review of the final rejection in the above-identified application No amendments are being filed with this request

This request is being filed with a notice of appeal

The review is requested for the reason(s) stated on the attached sheet(s)
Note: No more than five (5) pages may be provided

I am the

- [ ] applicant/inventor
- [ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3 73(b) is enclosed (Form PTO/SB/96)
- [X] attorney or agent of record Registration number 36,597
- [ ] attorney or agent acting under 37 CFR 1 34 Registration number if acting under 37 CFR 1 34 _____

Kevin M. Mason
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February 26, 2007
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required Submit multiple forms if more than one signature is required, see below*.

- [ ] *Total of _____ forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS **SEND TO: Mail Stop AF, Commissioner for Patents, P O Box 1450, Alexandria, VA 22313-1450**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): Eide et al.
Docket No.: YOR920000648US1
Serial No.: 09/732,122
Filing Date: December 7, 2000
Group: 2626
Examiner: Abul K. Azad

Title: Method and Apparatus for Producing Natural Sounding Pitch Contours in a Speech Synthesizer

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MEMORANDUM IN SUPPORT OF
PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The present invention and prior art have been summarized in Applicants' prior responses.

STATEMENT OF GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1 through 24 are presently pending in the above-identified patent application. Claims 1, 3-10, 12-17, and 19-24 are rejected under 35 U.S.C. §102(b) as being anticipated by Kleijn (United States Patent Number 5,517,595), and claims 2, 11, and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kleijn, and further in view of Udaya (United States Patent Number 6,418,408).

ARGUMENTS

Independent Claims 1, 10, 17 and 22

Independent claims 1, 10, 17, and 22 are rejected under 35 U.S.C. §102(b) as being anticipated by Kleijn. Regarding claim 1, the Examiner asserts that Kleijn teaches "enhancing the natural sound of concatenated synthesized speech segments by increasing an amount of energy in low frequency components of said pitch contour" (col. 16, line 56, to col. 17, line 10).

Applicants note that, in the text cited by the Examiner, Kleijn teaches that

> using a random phase spectrum in combination with a deterministic magnitude spectrum results in relatively "harsh" sounding noise contributions in the reconstructed speech. While this is satisfactory for most purposes, "smoother" sounding noise contributions can be obtained by generating the REW using sets of Fourier-series coefficients which represent time-domain Gaussian-noise sample sequences of length one pitch cycle. These complex Fourier-series are multiplied by the REW magnitude spectrum to obtain a good REW.
>
> The reconstructed speech quality can be further enhanced by additional processing within REW reconstructor 602. When the periodicity level is small for low frequencies, and higher for high frequencies such enhancement can be obtained with amplitude modulation of the REW. It is known from studies of the vocal cords, that so-called aspiration noise is not uniformly distributed over the pitch cycle, but mostly located near the pitch pulse. This knowledge can be exploited in the reconstruction of the prototype waveforms by modulating the REW amplitude using the SEW amplitude-envelope. Alternatively, information about the amplitude envelope of the REW can be transmitted.
> (Col. 16, line 56, to col. 17, line 10.)

Contrary to the Examiner's assertion, Applicants could find no disclosure or suggestion by Kleijn of *enhancing the natural sound of concatenated synthesized speech segments* by increasing an amount of energy in low frequency components of the *pitch contour*, or that the increasing step serves to add vibrato to the pitch contour. Independent claims 1 and 22 require *enhancing the natural sound of concatenated synthesized speech segments* by increasing an amount of energy in low frequency components of said pitch contour. Independent claim 10 requires *enhancing the natural sound of concatenated synthesized speech segments* by adding band limited noise to said pitch contour. Independent claim 17 requires "*enhancing the natural sound of*

concatenated synthesized speech segments by *filtering said pitch contour with an impulse response filter having a pole at a desired low frequency value*" Claims 8, 15, and 20 require wherein said increasing step serves to add vibrato to said pitch contour.

Thus, Kleijn does not disclose or suggest enhancing the natural sound of concatenated synthesized speech segments by increasing an amount of energy in low frequency components of said pitch contour, as required by independent claims 1 and 22, does not disclose or suggest enhancing the natural sound of concatenated synthesized speech segments by adding band limited noise to said pitch contour, as required by independent claim 10, does not disclose or suggest enhancing the natural sound of concatenated synthesized speech segments by filtering said pitch contour with an impulse response filter having a pole at a desired low frequency value, as required by independent claim 17, and does not disclose or suggest wherein said increasing step serves to add vibrato to said pitch contour, as required by claims 8, 15, and 20.

Claims 9, 16 and 21

Claims 9, 16, and 21 are rejected under 35 U.S.C. §102(b) as being anticipated by Kleijn. In particular, the Examiner asserts that Kleijn teaches wherein said pitch contour comprises a pitch value associated with each syllable of said speech (col. 2, lines 35-52).

In the text cited by the Examiner, Kleijn teaches that

> the present invention provides a speech-coding method and apparatus. An illustrative embodiment of the speech coder comprises an outer layer and an inner layer. The outer layer is a prototype-waveform-interpolation analysis-synthesis system. Its analysis part computes the linear-prediction residual, performs pitch detection, and extracts the prototype waveforms. The synthesis part of the outer layer aligns the prototype waveforms, interpolates in time between the aligned prototype waveforms to create instantaneous waveforms, reconstructs the residual (excitation) signal by concatenation of samples taken from successive instantaneous waveforms, and filters the excitation signal with the linear-prediction synthesis filter. At high sampling rates (less than one half pitch cycle per prototype waveform), this outer layer analysis-synthesis system renders reconstructed speech which is virtually transparent.
> (Col. 2, lines 35-50.)

Kleijn, however, does not disclose or suggest wherein said pitch contour comprises a *pitch value associated with* ***each syllable*** *of said speech*. Claims 9, 16, and

21 require wherein said pitch contour comprises a *pitch value associated with* ***each syllable*** *of said speech*.

Thus, Kleijn does not disclose or suggest wherein said pitch contour comprises a pitch value associated with each syllable of said speech, as required by claims 9, 16, and 21.

Additional Cited References

Udaya was also cited by the Examiner for its disclosure that said low frequency component is 0-25 Hz. Udaya does not, however, disclose or suggest *enhancing the natural sound of concatenated synthesized speech segments* by increasing an amount of energy in low frequency components of said *pitch contour*, does not disclose or suggest wherein said increasing step serves to add vibrato to said pitch contour, and does not disclose or suggest wherein the pitch contour comprises a pitch value associated with each syllable of speech.

Thus, Udaya does not disclose or suggest enhancing the natural sound of concatenated synthesized speech segments by increasing an amount of energy in low frequency components of said pitch contour, as required by independent claims 1 and 22, does not disclose or suggest enhancing the natural sound of concatenated synthesized speech segments by adding band limited noise to said pitch contour, as required by independent claim 10, does not disclose or suggest enhancing the natural sound of concatenated synthesized speech segments by filtering said pitch contour with an impulse response filter having a pole at a desired low frequency value, as required by independent claim 17, does not disclose or suggest wherein said increasing step serves to add vibrato to said pitch contour, as required by claims 8, 15, and 20, and does not disclose or suggest wherein said pitch contour comprises a pitch value associated with each syllable of said speech, as required by claims 9, 16, and 21.

Dependent Claims 2-9, 11-16, 18-21 and 23-24

Dependent claims 3-9, 12-16, 19-21, and 23-24 are rejected under 35 U.S.C. §102(b) as being anticipated by Kleijn, and claims 2, 11, and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kleijn, and further in view of Udaya.

Claims 2-9, 11-16, 18-21 and 23-24 are dependent on claims 1, 10, 17, and 22, respectively, and are therefore patentably distinguished over Kleijn and Udaya (alone or in any combination) because of their dependency from independent claims 1, 10, 17, and 22 for the reasons set forth above, as well as other elements these claims add in combination to their base claim

All of the pending claims, i.e., claims 1-24, are in condition for allowance and such favorable action is earnestly solicited.

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

The Examiner's attention to this matter is appreciated.

Respectfully submitted,

Date: February 26, 2007

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